




UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southwest Region
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DEC 15 2003

MEMORANDUM FOR: Research Permit #1408

FROM: Rodney R. McInnis 
Acting Regional Administrator

SUBJECT: Addendum to the Central Valley Programmatic Biological Opinion for
Scientific Research

I. CONSULTATION HISTORY

Section 10(a)(1)(A) of the Endangered Species Act of 1973, as amended, (ESA) provides the National Marine Fisheries Service (NOAA Fisheries) with authority to grant exceptions to the ESA's "taking" prohibitions for scientific research (see regulations at 50 CFR 222.301 through 222.308, and 50 CFR 224.101 through 224.102). Scientific research or enhancement permits may be issued to Federal or non-Federal entities conducting research or enhancement activities that involve take of ESA-listed endangered or threatened species. Any permitted research or enhancement activities must: (1) be applied for in good faith, (2) if granted and exercised, not operate to the disadvantage of the endangered species, and (3) be consistent with the purposes and policy set forth in section 2 of the ESA (50 CFR 222.303(f)). NOAA Fisheries prepared this addendum to the Central Valley Programmatic Biological Opinion for Scientific Research (Opinion), signed on September 5, 2003, in compliance with section 7(a)(2) of the ESA, as amended (16 U.S.C. 1536).

On November 15, 2002, the California Department of Water Resources (DWR) submitted an application for a research permit for a project involving capture of non-listed white sturgeon in San Pablo Bay, the Sacramento-San Joaquin Delta, and the Sacramento River. The proposed project may result in take of adult ESA-listed endangered Sacramento River winter-run Chinook salmon (*Oncorhynchus tshawytscha*), threatened Central Valley spring-run Chinook salmon (*O. tshawytscha*), and threatened Central Valley steelhead (*O. mykiss*). NOAA Fisheries published a notice of receipt of DWR's permit application in the Federal Register on December 10, 2002 (67 FR 75848), announcing the beginning of a thirty-day public comment period. No public comments were received.



II. DESCRIPTION OF THE PROPOSED ACTION

Under the authority of section 10(a)(1)(A) of the ESA, NOAA Fisheries proposes to issue research Permit 1408 to DWR authorizing take of adult Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, and Central Valley steelhead. The permit would be in effect through June 30, 2008, and would be subject to the limitations of the ESA and the regulations in 50 CFR parts 222, 223, and 224, for the period stated on the permit unless it is modified, suspended, or revoked sooner.

A. Research Project Description

In a request for Permit 1408, DWR proposes to collect adult white sturgeon from San Pablo Bay, the Sacramento-San Joaquin Delta, and the mainstem of the Sacramento River to study sturgeon swimming performance and behavior. The researchers will observe captive sub-adult white and green sturgeon and wild white sturgeon in experimental flumes to quantify their behavioral responses to various flow velocities, water depths, light conditions, substrates, and various sizes and configurations of baffles. The results will be used in the design of fish passage structures in the Yolo Bypass and the Delta Cross Channel.

The project exclusively targets collection of migrating adult white sturgeon in San Pablo Bay, the Sacramento-San Joaquin Delta, and in the Sacramento River to River Mile 220, near Hamilton City. Sturgeon will be collected using long-line gear deployed from boats with large 6/0, 8/0, or 10/0 circle and J hooks baited with shrimp, lamprey, worms, salmon roe, or sardines at the end of a sinking ground line less than 1,200 feet long. The line will sit on or near the bottom of the channel for no longer than 8 hours at a time. Sampling will occur on average three days a week from January to May in 2004 and 2005, and may extend through May of 2008.

B. Description of the Action Area

The action area includes sampling areas within the Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, and Central Valley steelhead ESUs. As mentioned above, sampling will occur in the San Pablo Bay, the Sacramento-San Joaquin Delta, and in the Sacramento River to River Mile 220, near Hamilton City.

C. Requested Amount of Take

DWR estimates all potential take of listed salmonids to be nonlethal. The project may result in an annual estimated nonlethal take of one adult Sacramento River winter-run Chinook salmon, one adult Central Valley spring-run Chinook salmon, and one adult Central Valley steelhead.

D. Measures to Reduce the Impacts of Issuing Permit 1408

Research activities authorized under Permit 1408 potentially will result in nonlethal take of adult Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, and Central Valley steelhead. Following are measures implemented to minimize any adverse impacts on these salmonids during the research activities:

- a. NOAA Fisheries has reviewed the credentials of the principal investigators for the proposed research: All investigators are well qualified and have provided evidence of experience working with salmonids or the concepts outlined in the proposed projects.
- b. NOAA Fisheries has developed nondiscretionary conditions for Permit 1408 that are necessary and appropriate to minimize take of listed salmonids, as described in the permit and Appendices A and B of the Opinion. The investigators will ensure that all persons operating under Permit 1408 will be familiar with the terms and conditions therein.
- c. NOAA Fisheries will monitor project activities to ensure that the project is operating satisfactorily in accordance with Permit 1408. NOAA Fisheries will monitor actual annual take of ESA-listed fish species associated with the proposed research activities (as provided in annual reports or by other means) and will adjust annual permitted take levels if they are deemed to be excessive or if cumulative take levels are determined to operate to the disadvantage of the salmonids.
- d. All persons operating under Permit 1408 will be properly trained and have access to properly maintained state-of-the-art equipment.
- e. All salmonids captured will be released immediately upon capture. Although no lethal take of listed salmonids is anticipated, should any salmonid suffer mortality in the course of research activities occurring under Permit 1408, the carcass will be placed in a labeled bag and delivered to NOAA Fisheries. NOAA Fisheries will then review the activities resulting in lethal take to determine if additional protective measures are required.

III. STATUS OF THE SPECIES AND CRITICAL HABITAT

The issuance of Permit 1408 may potentially affect Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, and Central Valley steelhead. The recently issued Opinion describes the status of the Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, and Central Valley steelhead ESUs. The current status of listed salmonids in the Central Valley, based on their risk of extinction, has not significantly improved since the species were listed (NOAA Fisheries 2003). Although the number of Sacramento River winter-run Chinook salmon has increased in the last six years, the ESU remains at risk of extinction. Sacramento River winter-run Chinook salmon run size declined

from a high of approximately 118,000 fish in 1969 to a low of fewer than 200 fish in 1994, and has recently increased to over 9,000 fish in 2002 (DFG 2002). Central Valley spring-run Chinook salmon have displayed broad fluctuations in abundance over time. Their numbers have ranged from lows of approximately 400 in 1966 and 3,000 in 1992 to highs of approximately 38,000 in 1982 and 34,000 in 1998, and recently number nearly 13,000 in 2002 (DFG unpublished data). Central Valley steelhead declined from an average of approximately 11,000 adult fish in the late 1960's and 1970's, to approximately 2,000 fish through the early 1990's (McEwan 2001). Recent estimates from trawling data in the San Francisco-San Joaquin Delta suggest estimates of over 3,600 female steelhead spawn in the Central Valley basin (NOAA Fisheries 2003).

The research activities described in this document do not result in any changes or effects to salmonid habitat including critical habitat for Sacramento River winter-run Chinook salmon. Therefore, critical habitat is not likely to be affected by issuance of Permit 1408 and is not considered further in this document.

IV. ENVIRONMENTAL BASELINE

The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process (50 CFR §402.02). A detailed discussion of the factors affecting the species in each ESU is provided in the Opinion.

A. Status of the Species in the Action Area

The action area serves as a migratory corridor for adult salmonids swimming upstream to their spawning grounds. The timing of the proposed research activities (e.g., January through May) would coincide with upstream migration of adult Chinook salmon and a small proportion of adult steelhead through the action area. Adult Sacramento River winter-run Chinook salmon would be present in the action area from November through June during their migration to their spawning grounds in the upper Sacramento River (NOAA Fisheries 1997). Adult Central Valley spring-run Chinook salmon would be present in the action area from February through June, as Ward and McReynolds (2001) have reported spring-run Chinook salmon returning to Butte Creek (a tributary to the Sacramento River close to the proposed project's upstream-most sampling site in Hamilton City) in late February through June. Only a small portion of the migrating adult Central Valley steelhead would be passing through the action area during the research sampling period. Rather, the bulk of steelhead migration passing the lower Sacramento River occurs from August through November (Hallock *et al.* 1961).

B. Factors Affecting the Species in the Action Area

The Opinion describes the ongoing activities and historical events that have affected listed salmonids in the Central Valley. In particular, two activities described in the Opinion, water diversion projects in the Sacramento-San Joaquin Delta and hatchery operations in the Feather River, have the largest potential impacts to the populations of listed salmonids in the action area. Namely, water development projects alter historical flow patterns that affect the timing of juvenile outmigration and direction of adult upstream migration of salmonids. Secondly, the large numbers of salmonid fish released from hatcheries (such as the Feather River hatchery) can pose a threat to wild salmonids through genetic impacts such as inbreeding, and increased competition, predation, and fishing pressure that result from hatchery production.

V. EFFECTS OF THE PROPOSED ACTION

The purpose of this section is to identify effects on Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, and Central Valley steelhead associated with NOAA Fisheries' issuance of Permit 1408. The potential effects of DWR's proposed research activities on listed salmonids would result from bycatch while fishing for sturgeon. Long-line fishing exercises size-selectivity in fish captured, and is an effective method for capturing sturgeon while minimizing adverse affects on salmonids. The proposed method to fish for sturgeon will not likely result in capture of salmonids given the benthic nature, size and type of hooks, and bait used to fish for sturgeon.

Salmonids are not likely to be caught by this long-lining method as they pass through the action area because adult salmon and steelhead do not tend to feed during their upstream migration. Rather, migrating adult salmon and steelhead, which are not benthic feeders, only strike at lures when triggered by aggression or when attracted to bait such as anchovies and herring (Healey 1991). The circle hooks used to fish for sturgeon are designed to lower post-release mortality as circle hooks tend to hook fish by their lip. The much larger circle and J hooks would not likely hook salmonids, which are typically fished for using 1/0 J-hooks. Lastly, the probability that the proposed fishing method will not capture salmonids is supported by a two-year sturgeon study that employed the same method and resulted in no bycatch of salmonids (Ray Shaffter, Department of Fish and Game, personal communication, September 24, 2003).

In the unlikely event that a salmonid is captured, the primary effects of long-line fishing would be harassment to the individual fish caught. A detailed description of the effects associated with capture by hook and line fishing and handling is found in the Opinion. Capture by hook and line may result in injuries to the fish that may include damage to the skeletal structure of the mouth, injury to gills, and secondary infections. Fish may be additionally stressed from handling, especially if the fish is kept out of the water before it is released.

Potential impacts to individual salmonids from the proposed research activities are unlikely to occur given the method proposed to capture target fish. One adult of each species may be captured annually. Physical injury resulting from project activities likely would be temporary and is not expected to reduce spawning success or fitness. For these reasons, NOAA Fisheries believes issuance of Permit 1408 to authorize the proposed research project is not likely to appreciably reduce the likelihood of survival and recovery of the Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, and Central Valley steelhead ESUs.

VI. CUMULATIVE EFFECTS

Cumulative effects are defined in 50 CFR § 402.02 as “those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation.” Future Federal actions, including the ongoing operation of hatcheries, water diversions, and some land management activities, will be reviewed through separate section 7 consultation processes and not considered here. Similarly, non-Federal actions that require authorization under section 10 will be evaluated in separate section 7 consultations and not considered here. A general summary of potential cumulative effects that may affect Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, and Central Valley steelhead within the action area is described in the Opinion. These include ongoing agricultural and urban activities that likely will continue to affect stormwater runoff patterns and water quality in the action area, and future population growth that will result in new urban development and increased disturbance of waterways and riparian areas, as well as stormwater and water quality impacts.

VII. CONCLUSION

After reviewing the best available scientific and commercial data, the current status of Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, and Central Valley steelhead, the environmental baseline for the action area, the effects of the proposed issuance of Permit 1408, and the cumulative effects, it is NOAA Fisheries’ biological opinion that the issuance of Permit 1408, as proposed, is not likely to jeopardize the continued existence of Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, and Central Valley steelhead.

VIII. INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Harm is further defined to include significant habitat modification

or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and 7(o)(2), taking that is incidental to and not intended as part of the proposed action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this Incidental Take Statement.

The issuance of Permit 1408 authorizes intentional take of Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, and Central Valley steelhead associated with DWR's proposed research activities. The action of issuing Permit 1408 does not anticipate incidental take of endangered or threatened species. This opinion does not authorize any taking of a listed species under section 10(a) or immunize any actions from the prohibitions of section 9(a) of the ESA.

IX. REINITIATION OF CONSULTATION

This concludes formal consultation on the issuance of Permit 1408. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) the identified action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in this amendment to the Opinion; or (4) a new species is listed or critical habitat designated that may be affected by the identified action.

XI. LITERATURE CITED

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